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EXAMINER

JELINEK, BRIAN J

ART UNIT PAPER NUMBER

2615

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,458

Applicant(s)

SASAKI, GEN

Examiner

Brian Jelinek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7/4, 8-15 is/are rejected.
- 7) ☒ Claim(s) 5-6, 7/5, 7/6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Response to Amendment

The Examiner respectfully submits a response to the amendment received on 9/20/2004 of application no. 09/964,458 filed on 9/28/2001 in which claims 1-15 are currently pending.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. Furthermore, the Examiner notes that the statement "the certified copy has been filed in parent Application No. Japan 2000-302355, filed on 10/2/2000" in the previous Office Action was made in error.

Drawings

The Examiner thanks the Applicant for correcting the objections to the drawings detailed in the previous Office Action.

Specification

The Examiner respectfully maintains the objection to the title. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Appropriate correction is required.

The Examiner thanks the Applicant for correcting objections to the labels of elements detailed in the previous Office Action.

Claim Objections

The Examiner thanks the Applicant for correcting claims with insufficient antecedent basis and improper multiple dependent form.

Claim 7 is objected to because of the following informalities: there is insufficient antecedent basis for the limitation in the claim.

Claim 7 recites the limitation "said digital image data" in line 3 of the claim. Appropriate correction is required.

Arguments

The Applicant's arguments have been fully considered but they are not persuasive. Please refer to the following office action, which clearly sets forth the reasons for non-persuasiveness.

Regarding claim 1, the Applicant asserts that Fukuoka et al. "fails to teach or suggest means for compressing the raw image data converted by and transferred from an A/D converting means" and "the image data stored in the memory is compressed A/D converted raw image data" because "the image data output from the digital signal processing circuit is no longer raw image data but is instead error corrected and aperture corrected". In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., raw image data comprises image data that has not been error or aperture corrected) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See

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In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In this case, Fukuoka et al. clearly discloses a means for compressing the raw image data converted by and transferred from an A/D converting means because image data is considered raw until after display on a display device.

Regarding claim 2, the Applicant requested support for the Official Notice taken on claim 2. The Examiner notes that Murakoshi (U.S. Pat. No. 4,455,575) teaches the recited limitations; namely, Murakoshi teaches the first and second fields are odd and even consisting of only odd and even lines, respectively (Fig. 8; col. 2, lines 8-34).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukuoka et al. (U.S. Pat. No. 6,212,331).

Regarding claim 1, Fukuoka et al. teaches an image processing circuit (Fig. 1, elements 4, and 11-15) processing raw image data picked up with an image pickup device (Fig. 1, element 9), comprising: means for A/D converting said raw image data (Fig. 1, element 4); means for compressing the raw image

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data converted by and transferred from said A/D converting means (Fig. 1, element 12); means for temporarily storing compressed data transferred from said compression means (Fig. 1, elements 13-15); means for reading said compressed data from said means for temporarily storing compressed data and expanding the same (Fig. 1, element 12); means for executing image processing on expanded data transferred from said expansion means (Fig. 1, element 12 VIDEO).

Regarding claim 14, Fukuoka et al. discloses a method for processing raw image data (Fig. 1, elements 4, and 11-15) picked up with an image pickup device (Fig. 1, element 9), comprising the steps of: A/D converting said raw image data (Fig. 1, element 4); compressing the raw image data converted in said A/D converting step (Fig. 1, element 12); temporarily storing compressed data compressed in said compression step (Fig. 1, elements 13-15); reading said compressed data from storage and expanding said compressed data read from storage (Fig. 1, element 12); and executing image processing on expanded data expanded in said expanding step (Fig. 1, element 12 VIDEO).

Regarding claim 15, Fukuoka et al. discloses an image processing apparatus for processing raw image data (Fig. 1, elements 4, and 11-15) picked up with an image pickup device (Fig. 1, element 9), comprising: an A/D converter configured to A/D convert said raw image data (Fig. 1, element 4); a compressor configured to compress the raw image data converted by and transferred from said A/D converter (Fig. 1, element 12); a buffer configured to temporarily store compressed data transferred from said compressor (Fig. 1,

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elements 13-15); an expander configured to read said compressed data from said buffer and expanding the same (Fig. 1, element 12); and an image processor configured to execute image processing on expanded data transferred from said expander (Fig. 1, element 12 VIDEO).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (U.S. Pat. No. 6,212,331) in view of Murakoshi (U.S. Pat. No. 4,455,575).

Regarding claim 2, Fukuoka et al. teaches an interlaced first and second field (col. 19, lines 1-5); and means for temporarily storing compressed data stores said compressed data of a first field and a second interlaced field (col. 5, lines 50-56). Furthermore, it is clear that said means for executing image processing reads said first field stored in said means for temporarily storing compressed data in synchronization with entry of a second field formed by remaining said field and executes real-time image processing on said first and second fields since individual fields are processed (col. 5, lines 51-56) and because the first and second fields must be in synchronization in order to

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produce the video signal (Fig. 1, VIDEO). Fukuoka et al. does not specifically disclose the image pickup device is driven by an interlacing system reading an odd field consisting of only odd lines and an even field consisting of only even lines forming a frame at temporally different timings.

However, Murakoshi disclose an image pickup device is driven by an interlacing system reading an odd field consisting of only odd lines and an even field consisting of only even lines forming a frame at temporally different timings (Fig. 8; col. 2, lines 8-34). As evidenced by Murakoshi, it is common practice in the art to identify the first and second fields produced by an interlaced image sensor as odd and even fields consisting of odd and even lines, respectively. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have identified the first and second fields produced by an interlaced image sensor as odd and even fields consisting of odd and even lines, respectively because it is a common practice in the art.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (U.S. Pat. No. 6,212,331) in view of Kerr (U.S. Pat. No. 5,844,600).

Regarding claim 3/1 and 3/2, Fukuoka et al. teaches DMA data transfer between a compression means and a means for temporarily storing compressed data (col. 5, lines 36-39). Fukuoka et al. does not teach DMA data transfer between a compression/expansion means and a means for temporarily storing compressed data.

However, Kerr teaches data transfer between a compression means and a means for temporarily storing compressed data, and data transfer between an expansion means and a means for temporarily storing compressed data are controlled by a direct memory access system (col. 7, lines 22-25; Fig. 3A, element 234, 232, 224, and 228; col. 5, lines 56-63). As a result, it would have been obvious to incorporate the DMA memory transfer between a means for temporarily storing compressed data and the compression/expansion means of Kerr in order to maximize data transfer to and from the compression/expansion means and to minimize the processing burden on the CPU. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide DMA data transfer not only between a means for temporarily storing compressed data and memory, but also between the means for storing compressed data temporarily and a compression/expansion means for rapid data transfer between said buffer and said compression/expansion means while reducing CPU processing demands.

Claims 4 and 7/4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (U.S. Pat. No. 6,212,331) in view of Andrew (U.S. Pat. No. 6,351,568).

Regarding claims 4 and 7/4, Fukuoka et al. discloses image data is compressed to a JPEG file (col. 8, line 36). Fukuoka et al. does not disclose means for dividing said raw image data into a plurality of blocks and outputting the same to said means for compressing, wherein said means for compressing

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and said means for expanding execute compression and expansion in units of said blocks; and means for dividing divides said raw image data into a plurality of blocks in units of lines.

However, Andrew does disclose means for dividing raw image data that is to be JPEG compressed into a plurality of 8x8 pixel blocks (a row of such blocks comprising a line unit), where both the compression and expansion is performed in units of blocks (Figs. 2 and 3; col. 1, lines 17-21; col. 9, lines 62-66; col. 10, lines 28-33 and 45-48). One of ordinary skill in the art would have provided the pixel blocks of Andrew in order to implement the JPEG compression of Fukuoka et al. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have provided means for dividing raw image data into a plurality of blocks and outputting the same to means for compressing, wherein said means for compressing and said means for expanding execute compression and expansion in units of said blocks; and means for dividing divides said raw image data into a plurality of blocks in units of lines in order to perform the JPEG compression and expansion disclosed by Fukuoka et al.

Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (U.S. Pat. No. 6,212,331) in view of Thompson (U.S. Pat. No. 4,661,862).

Regarding claims 8-12, please see the rejections for claim 1 and note that Fukuoka et al. discloses all of the limitations of claim 1 except means for calculating the difference between pixel values. However, Thompson discloses

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means for calculating the difference between pixel values in order to provide an effective compression algorithm (Abstract: lines 1-14). As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have provided means for calculating the difference between pixel values in order to provide an effective compression algorithm.

Regarding claim 8, Thompson discloses means for calculating the difference between pixel values of raw image data and outputting said difference to a means for compressing before compressing said raw image data in the compression means (Abstract, lines 5-6; Figs. 1 and 4; col. 2, lines 19-31).

Regarding claim 9, Thompson discloses means for calculating calculates the difference between the values of pixels adjacent to each other along a time base because as time advances pixels S1 and S2, for example, remain adjacent for every interlaced scan of the odd field (Fig. 4; col. 3, lines 24-63; col. 8, lines 29-42).

Regarding claim 10, Thompson discloses means for calculating calculates the difference between the values of alternate pixels along a time base because as time advances, pixels S2 and S5 remain on alternate lines (Fig. 4; col. 3, lines 24-63; col. 8, lines 29-42).

Regarding claim 11, Thompson discloses means for calculating calculates the difference between the values of vertically adjacent two pixels of two lines of said raw image data because pixels S2 and S4 are vertically adjacent on two lines of the same field (Fig. 4; col. 3, lines 24-63; col. 8, lines 29-42).

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Regarding claim 12, Thompson discloses means for calculating calculates the difference between the values of vertically adjacent two pixels of alternate lines of said raw image data because pixels S2 and S4 are vertically adjacent on alternate lines (col. 3, lines 24-63; Fig. 4; col. 8, lines 29-42).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (U.S. Pat. No. 6,212,331), in view of Thompson (U.S. Pat. No. 4,661,862), and further in view of Spitzer et al. (U.S. Pat. Pub. 2001/0012067).

Regarding claim 13, Fukuoka et al. discloses a CCD image sensor (Fig. 1, element 9) and interlaced and non-interlaced image files (col. 19, lines 1-5), but does not disclose how the respective image files are produced.

However, Spitzer et al. discloses an HDTV CCD image sensor (para 1) that is switchable between an interlace-scan and progressive-scan modes. One of ordinary skill in the art would have provided an HDTV CCD image sensor (para 1) that is switchable between interlace-scan and progressive-scan modes in order to produce the interlaced and non-interlaced image files disclosed by Fukuoka et al. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have provided an HDTV CCD image sensor that is switchable between interlace-scan and progressive-scan modes in order to produce the interlaced and non-interlaced image files disclosed by Fukuoka et al.

Neither Fukuoka et al. nor Spitzer et al. disclose means for calculating, which calculates the difference between the values of vertically adjacent two pixels of alternate lines or two lines of raw image data, is selected in response to a driving system for the image pickup device. However, Thompson discloses means for calculating, which calculates the difference between the values of vertically adjacent two pixels of alternate lines (Fig. 4, element S2 and S5) or two lines (Fig. 1, S2 and S5) of the raw image data. One of ordinary skill in the art would have calculated the difference between pixel values in order to provide an effective compression algorithm (Abstract: lines 1-14). As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have calculated the difference between pixel values in order to provide an effective compression algorithm.

Neither Fukuoka et al., Spitzer et al., nor Thompson discloses disclose selecting a means for calculating in response to a driving system of the image pickup device. However, it would have been obvious to one of ordinary skill in the art to have selected the means for calculating in response to a driving system of the image pickup device because in interlaced-scanning, neighboring pixels reside on alternate lines (Thompson: Fig. 4, S2 and S5); and in progressive-scanning, neighboring pixels reside on two subsequent lines (Thompson: (Fig. 1, S2 and S5). As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected the means for calculating in response to a driving system of the image pickup device because in interlaced-

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scanning, neighboring pixels reside on alternate lines; and in progressive-scanning, neighboring pixels reside on two subsequent lines.

Allowable Subject Matter

Claims 5-6, 7/5, and 7/6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 5, the reason for allowance is as follows: the prior art does not disclose or fairly suggest detecting a block including a defective pixel data among expanded data and outputting a corrected block to compression.

Regarding claim 6, the reason for allowance is as follows: the prior art does not disclose or fairly suggest defect inspection and correction on expanded data before being output to compression.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

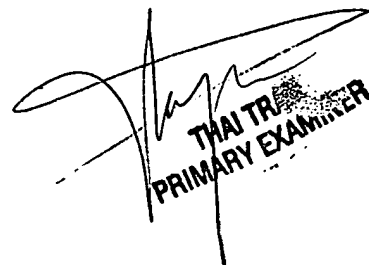
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory

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action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Jelinek whose telephone number is (703) 305-4724. The examiner can normally be reached on M-F 8:00 am - 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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